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TI - METHOD FOR FORMING CURRENT CONSTRICTION LAYER, ANI CURRENT CONSTRICTION TYPE SURFACE EMITTING LASER

IN - MIYAMOTO TOMOYUKI;IGA KENICHI;KOYAMA FUMIO; SEKIGUCHI SHIGEAKI

PA - TOKYO INST TECH

IC - H01S5/183

TI - Electric structure layer formation for luminescent laser equipment, by forming metal electrode in preset area on semiconductor surface, tunnel effect of tunnel joint is prevented to form electric structure layer

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AB - JP2000277853 NOVELTY - A tunnel joint (9) is formed inside the semiconductor device. A metal electrode (5) is formed in a predetermined area on the surface adjoining the tunnel joint of the semiconductor device by heat treatment, so that tunnel effect of tunnel joint is prevented and electric structure layer (11) is formed inside the semiconductor device.

- DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for luminescent laser equipment.
- USE - For luminescent laser equipment.
- ADVANTAGE - Improves mass production property. Improves operating characteristics of luminescent laser such as operating current and efficiency.
- DESCRIPTION OF DRAWING(S) - The figure shows the conceptual diagram of structure of luminescent laser equipment.
- Metal electrode 5
- Tunnel joint 9
- Electric structure layer 11
- (Dwg.1/8)

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TI - METHOD FOR FORMING CURRENT CONSTRICTION LAYER, AND CURRENT CONSTRICTION TYPE SURFACE EMITTING LASER

AB - PROBLEM TO BE SOLVED: To easily provide a method for forming a current constriction layer in a semiconductor device in a simple process, and a current bottleneck type surface emitting laser with the current constriction layer obtained by this method.

- SOLUTION: A surface emitting laser device includes a clad layer3 composed of an n-type clad layer 6, an active layer 7, a p-type clad layer 8, a planar tunnel junction 9, and an n-type clad layer 10 formed sequentially on a first reflecting mirror 1 and a first electrode 2. A second reflecting mirror 4 and a second electrode 5 are formed on the clad layer 3. The second electrode 5 is diffused through heat treatment into the inside of the adjoining n-type clad layer 10. In this step, a current constriction layer 11, in which a tunnel effect is extinguished, is formed at a position in the tunnel junction 9 corresponding to the second electrode 5.

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